TOWN OF ROCKPORT
ROCKPORT PUBLIC SCHOOLS

Rockport Master Technology Plan

FY 2018-2022

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Town of Rockport

The general government of the Town of Rockport's core mission is to provide the most benefit for the community of Rockport within the budget. The Information Systems & Technologies Department's (IS&T) core mission is to provide maximum value to the general government employees by allowing the opportunity to increase efficiencies and collaboration by deploying technology in an appropriate manner.

Rockport Public Schools Core Values and Beliefs Statement

Rockport Public Schools, in partnership with families and the community, provides a safe environment that fosters integrity, respect, and success. We promote intellectual curiosity and pride in achievement. We challenge all students to pursue academic excellence, develop interpersonal skills, and value civic responsibility. Students learn 21st Century skills in order to fully participate in a diverse and ever-changing world.

Statement of Planning Goals

Goal One: Continuous. Five year planning in technology is the act of balancing the known need for steady resources with the inevitable unknown future needs and requirements. Yearly adjustments to the budgetary plans are required to react to the changing nature of technology and the opportunities presented by convergence, innovation, and the needs of students and staff. These yearly adjustments will be reflected each fall during the budget request and development process.

Goal Two: Purposeful and Thoughtful. Our technology plan goals are designed to support and encourage active engagement of students, teachers and government employees with proven communication, productivity, and curricular tools. Planning begins at the building level with curriculum needs and integration goals. Assessments of student and staff technology literacy skills will inform staff development goals. Pilot programs will be employed to test and gauge the effectiveness of technology implementations based on quantitative and/or qualitative measures.

Goal Three: Quality Improvement. To be successful, our technology department needs to be proactive, responsive, and resilient. From the staffing to the equipment, successful innovation with technology will only happen in an environment where manpower and equipment are able to meet the needs of all users. Innovative thinking with a view towards the future must be the expectation.

Goal Four: Efficiency. As technologies grow and develop, the technology department will continue to collaborate and integrate services within the government, the schools and the community. This includes hardware, software, and personnel skill sets.

Curriculum Integration

The process of integrating educational technologies into the Rockport Public Schools' curriculum shall be achieved through the thoughtful linking of curriculum goals to appropriate technologies and delivery. Integration efforts will be focused on systemic projects with multi-year goals tied to the Massachusetts Curriculum Frameworks and the Massachusetts Instructional Technology Standards.

The Superintendent, Principals, Director of Student Services, and, when applicable, Director of Information Systems and Technologies, will review all curriculum integration initiatives for continuity, impact, and efficiency of time and money. Successful integration pilot projects will become the focus of future staff development and appropriate budget planning for its dissemination.

FY 2018-2022 IS&T Action Plan Items for Curriculum Integration:

• Work with the Principals to develop an implementation model to connect curriculum, computer literacy skills, and appropriate assessments into the core curriculum experience for all students.

• Work with the Principals to set short and long-term integration goals and priorities within buildings, grade levels, and/or subject areas including developing a new district wide STEAM program.

• Work with the Superintendent and Principals to ensure that the evaluation of technology tools and use is done within the framework of the program review process.

• Work with the Rockport Public Schools' leadership team to provide online opportunities to augment curriculum offerings.

• Review the effectiveness of our technology integration support structure and make changes based on that evaluation report.

RPS Staff Development

The changing nature of technology requires us to acknowledge the need for ongoing staff development for both management and instructional integration.

District staff development goals and activities are managed and administered by the Administrative Team including the Superintendent, the Principals, and the Director of Student Services. The IS&T Director will assist with staff development activities within the context of district and technology implementation plans with the Administrative Team. Staff development needs, based on specific curriculum implementations, will be identified and addressed by the relevant leaders in coordination with the Administrative Team.

It is important for the district to ensure that the IS&T department personnel also remain current through staff development to enable them to support managerial and classroom innovation. When possible, the technology budget will reflect an effort to encourage professional development growth at all levels of the school system.

FY 2018-2022 IS&T Action Plan Items for RPS Staff Development

• Collect data annually regarding staff technology skills and needs that can be used to inform planning.

• Plan and execute staff development programs concurrent to the installation of technologies that affect instructional practice.

• Develop integration expertise in curriculum leaders, grade level leaders, and curriculum coordinators through targeted activities.

• Support the growth and expand the technical expertise of technology staff through training opportunities.

RPS Administrative Efficiency

Technology will be used to increase communication, provide access to instructional materials, manage assessment data, create workflow processes, and increase efficiency with, and among the staff, students, parents, and the community. Information systems for record keeping, and reporting will be explored for implementation throughout the system. These goals will be accomplished by a variety of hardware, software and training from the technology support personnel.

1) MCAS online testing: The Department of Elementary and Secondary Education has mandated that all MCAS testing will transition from paper to computer based testing by the 2019-2020 school year.

2) Application Management: The Department of Elementary and Secondary Education (DESE) has mandated increasingly detailed reporting requirements that include careful coordination of data from multiple systems, including but not limited to MIDAS, Healthmaster, Blackboard Engage, Galileo, Teachpoint and eSPED. Additionally, administrative and appropriate support personnel will need ongoing staff development opportunities to make efficient use of such systems.

3) Planned Review of Software: Administrative software, such as student information systems, special education database systems, personnel records systems, and financial systems will be evaluated annually and upgraded as needed to meet the needs of the school system.

4) Website: The Rockport Public Schools' website will be used to increase the communication with faculty, students, parents, and community. New services will be considered to engage the public in productive conversations and enable "community" through Web 2.0 technology services as well as social media branding.

5) Electronic Document Storage: Increase the utilization of the existing or upgraded Copiers/Multi-Function Printers (MFP) to include the ability to leverage a central electronic storage location for storage of large quantities of school documents.

FY 2018-2022 Action Plan (of major projects)

• Evaluate the database systems in use by the district and recommend systems to meet all instructional, management, and reporting needs.

• Centralize management of all database systems.

• Continue website development and deployment to all stakeholders.

• Continue to deploy electronic document storage software service, building on existing general government services.

Government Staff Development

For all Rockport Government Employees, technology will be used to increase communication, create workflow processes, increase collaboration, and increase efficiency with, and among the staff, and the community. These goals will be accomplished by a variety of hardware, software and training from the technology support personnel.

1) Planned Review of Software: Administrative software, such as personnel records systems, and financial systems will be evaluated annually and upgraded as needed to meet the needs of the government departments.

2) Website: The Government website will be used to increase the communication with community. New services will be considered to engage the public in productive conversations and enable "community" through Web 2.0 technology services as well as social media branding.

3) Electronic Document Storage: Increase the utilization of the existing or upgraded Copiers/Multi-Function Printers (MFP) to include the ability to leverage a central electronic storage location for storage of large quantities of government documents. Police arrest records and accounting documents will be the next areas of focus.

Technology Support Personnel

The Rockport Information Systems and Technologies Department is a combined Department responsible for supporting both the general Government Departments and Rockport Public Schools. The IS&T Dept. shall employ a variety of staff to ensure the thoughtful integration of technology. This shall include the necessary

technical support personnel to maintain the productive use of technology, technical stability of hardware and software, network services, communications systems, as well as expertise in the integration of technology into the curriculum.

FY 2018-2022 Action Plan (of major projects)

• Review and propose changes if necessary to the technology department staffing structure to better meet the needs of the school system.

• Consolidate school/town services when and where appropriate for efficiency and cost savings.

• Continually update all technical support personnel skill sets.

• Continually seek out opportunities to learn from other communities.

Disaster Recovery, Security, and Continuity of Operations

Technology is mission critical to all government employees, students, staff, faculty, and administration. We rely on communications and data systems for attendance, grading, accounting, record keeping, reporting and most importantly emergency communications. Our teachers also rely on technology for instruction both in the classroom and while utilizing one of our 4 computer labs, hundreds of computers, tablets, projectors, mobile laptop cart, mobile iPad cart, and 60 classroom mounted interactive whiteboards. Network failure and data loss result in inefficiency, lost instructional time, and a delay in essential services. We must prepare and plan for resiliency, redundancy (where appropriate), and quick recovery from the inevitable unknown.

Steps have been taken to enable the Rockport Public Schools and the Town of Rockport data networks to join forces for redundancy in storage, core networking services, and planning for disaster recovery, security, and continuity of operations planning.

Malware and Ransomware Protection: Ransomware attacks are a very serious threat to all computer systems world wide. These targeted attacks will prevent the use of any computer system if not properly protected. This year we have taken proactive steps on top of our already existing reactive systems, to ensure our systems, and our data is safe.

FY 2018-2022 Action Plan (of major projects)

• Create disaster recovery plans to leverage the school/general government consolidated network.

• Implement hardware systems that are both resilient and redundant for core services and data.

• Ensure all software and hardware monitoring systems fully functional

• Verify all anti-virus/anti-ransomware software is up to date.

• Train all staff on phishing scams

Hardware Replacement Plan

Lifecycle Guidelines: *Please note that our hardware lifecycles are not absolute, rather our expectation used for long term budget planning. Some hardware lasts longer, some shorter.*

Desktop computers	5 to 6 years
Laptops	4 to 5 years
Chromebooks	4 to 5 years
iPads	3 to 4 years, the rest of useful life at ES
Projectors	7 to 10 years
Interactive Whiteboards	6 to 8 years
Document Cameras	7 to 10 years
Printers	Until repair cost is not effective
Copiers (MFP)	Leased on a 3 to 5 year basis

The Rockport Public Schools has over 650 computing devices, 70 iPads, 40 printers, 60 LCD projectors, 50 interactive whiteboards, and dozens of various other devices like scanners, clickers, Copiers/MFPs, and tablets. The general Government offices has over 75 computing devices, iPads, tablets, projectors, cameras, and many other devices. Maintaining a viable inventory of equipment is important in order to address lifecycle planning based on recommended standards.

First, however, a few important industry trends should be noted. The shift to consumer mobile devices of every size and shape continues as BYOD (bring your own device), moves into every organization. This provides the staff and students with more choices and greatly increases the use of technology in the classroom. BYOD has the potential to lower the amount of hardware that needs to be

purchased by the schools, while also creating a more complex environment to support.

Cloud based Software as a Service (SaaS) solutions are being utilized, increasing the availability of traditional on premise school services across any device, while decreasing the cost of purchasing and maintaining on premise hardware and software. In addition, this creates a predictable fixed cost structure, because all upgrades are included in the fees.

These BYOD and Cloud trends demonstrate a shift from static wired network in an environment that is secure behind the firewall, to one that is dynamic, wireless, mobile and the same no matter where you are. They also underscore the need for a more robust and stable core infrastructure, WiFi, and Internet connections.

In general, to achieve a stable and robust overall computer network result, it is prudent to budget for the replacement of 20% of the all computer equipment on a yearly basis. To accomplish this, an inventory database of technology equipment will be kept and used for long-range budget planning.

The IS&T Department will coordinate purchases and services with the general government departments and/or state contracts as a means to leverage the best prices and services for the Town of Rockport.

FY 2018-2022 Action Plan (of major projects)

• Propose yearly replacement plans to ensure the long-term stability of our computing and communications tools and infrastructure.

• Implement new technologies to leverage convergence of web based services, such as cloud computing, to meet the diverse needs of education and the government.

Core Communication Infrastructure

Rockport's core infrastructure can be divided into four components; 1) the physical copper and fiber network, 2) network switches and wireless network, 3) server based application services and storage, and 4) voice and emergency communications. All email communications, applications, file storage, Voice over IP (VoIP) and Internet access rely on this network. In the future, with the continued convergence of technologies, we will likely be adding services such as SCADA communications, security access control, security vandal and video monitoring. Our core infrastructure is our most important mission critical resource. Maintaining and upgrading these resources is priority one, and during this five-year plan, all four core infrastructure components will require significant replacement.

Core resources in need of immediate attention:

- Access control systems for the schools are inadequate for our current requirements, do not allow for a single point of management and control, and need to be replacement.
- RPS and general government camera systems are either non-existent or are not adequate for our current security needs.
- Network switching electronics and a centralized secure wireless network are the key to enabling government employees, students and staff secure and stable access to work related software, instructional resources anywhere within the town buildings. A significant amount of the network equipment and cabling needs to be lifecycled or added to allow for additional wireless access points, cameras and access control systems to be add to the municipal fiber network.
- Server resources need to adhere to the hardware replacement plan. Our file storage capacity meets our needs as does our backup system. However, we

need to expand the redundancy of our data center to include the educational services. This needs to be addressed in FY19.

We will take advantage of opportunities to design and implement school and general government shared resources to avoid unwarranted duplication and add important redundancies to increase efficiency and stability of services. Disaster recovery planning will be created with both the school system and general government needs in mind.

FY 2018-2022 Action Plan (of major projects)

• Upgrade network cabling, as necessary, for cameras, access control, WiFi, or increased speeds.

• Finish our Emergency Communication Systems Project with multiple redundant fiber rings for maximum resilience.

• Expand the Fiber Optic Municipal Area Network allowing for inter-building connectivity, to include the Police Department.

• Upgrade the Police Department, network, servers, phone system as soon as possible.

• Add Redundancy where the budget allows.

Facilities Safety and Security Improvements

Rockport's IS&T Facility improvements will rely on the Core Communications Infrastructure.

• Access Control System: An identity aware access control system will be installed at all exterior doors that are used as primary access points to the buildings.

• Video Monitoring: IP based security cameras will be added to assist the access control system and to monitor any areas of the School district and Government facilities that need additional safety and security.

• Upgrade RPS Intrusion Security System: Burglar System upgrade. This proposed system will interact with the new identity aware access system. The current system is approximately 25 years old and needs to be replaced.

• Upgrade RPS Fire System: The Core Fire system electronics are no longer manufactured and parts are becoming harder to find. The current system is approximately 25 years old and needs to be replaced.

FY 2018-2022 Action Plan (of major projects)

• Install network cabling, as necessary, for doors identified as primary access points and for video monitoring system.

• Identify the locations to add video surveillance, and then add the necessary infrastructure to allow this system to be installed.

• Identify the upgrade path for the burglar and fire system to allow integration with access control system.

IT Roadmap

Recent Projects

- Replaced ES Wireless system - 50% funded by E-Rate
- Upgraded MS/HS Wireless capacity by 30%
- Deployed new state of the art backup and restore appliances and software
- Upgraded Internet connectivity from 150mbps to 600mbps.
- Installed interactive projectors in nearly all Elementary, Middle, and High class rooms
- Replaced Student Information System
- Deployed over 300 Chromebooks
- Supported PARCC online testing in schools
- Installed new HD robotic camera system with Cape Ann TV
- Added backup power to all HS/MS network closets
- Initiated STEAM curriculum in HS by deploying 3-D printing and robotics

In Progress

- Emergency Communication System Project - All new radio system for all government departments. This includes expanding the Municipal Fiber network to facilitate 100% coverage.
- Continuing progress on our Chromebook deployment, with the goal of 15 Chromebooks in every classroom.
- Install backup power to Elementary School.
- Expand security camera system as needed.
- Planning for upgrading security system in ES and HS/MS buildings
- STEAM curriculum planning
- Deployment of Robotics and coding at every level of the district

Future Projects

- Completing deployment of Chromebooks to every classroom
- Implement HD robotic camera system for School Comm with Cape Ann TV
- Implement new ES alarm system
- Implement new access control system
- Transition to digitized record keeping
- Replacement of RPS Auditorium projector, screen and wiring
- Printer consolidation to reduce overall printing costs
- Improve network redundancy
- Deploy robotics in MS & ES
- Integrate all existing government cameras into central digital surveillance system
- Finish Emergency Communication System Project
- Expand the Municipal Fiber Network (MFN), to all Government Buildings
- Expand the MFN to improve SCADA system
- Become the primary technology support for the Town Library.
- Upgrade the Town Library network infrastructure and integrate into MFN
- Upgrade the Police Department network infrastructure and phone system

Attachments

Attachment A - pg 20

FY 2014 - 2018 CIP fund expenditures, major purchases only

Attachment B - pg 22

Rockport Inventory

Attachment B - pg 24

I.S. & Technologies Dept Function and Role

Attachment A - FY 2014 - 2018 CIP fund expenditures, major purchases only

FY18

- 10 Desktops for Town & 10 monitors
- 15 14" i5 8GB, 128GB SSD Dell Latitude 5480s for teachers
- 8 Dell desktops for Police Dept with 4 monitors
- 33 Chromebooks and 5 carts Bretford Cubi Mini carts
- Ricoh 2004ex for Town Assessor's office
- Badge printing system

FY17

- LocknCharge Chromebook carts
- 19 Mimio wall mounted Interactive White Boards
- Transfer Station Network upgrade Electronics, config and installation to bring this location onto the MFN
- 20 Teacher Laptops normal lifecycling - Dell 5470

FY 16

- Wireless Controller - used for both Gov and Education
- 33 Mimio wall mounted Interactive White Boards, some with new boards and sound
- 110 Chromebooks, 5 carts and 2 wall mounts
- 10 Wireless Access Points for RPS
- Total 36 Desktops for Library Lab & misc
- 10 iPad Airs 32GB
- Ricoh DocMall - Paystub backfile scanning
- 30 MacBook Airs - faculty
- 24 Teacher Laptops Dell 5470 normal lifecycling

FY15

- 5 short throw projector installations
- AC in School Server room
- Town Printers, Accounting, Treasurer, Annex, MS faculty
- Toughbook for Fire Dept Ladder Truck - stand and installation to come
- Ricoh Duplicators
- RPS Faculty Laptops - life cycle
- Gov Laptops, regular and supped up for special positions

- LifeCycle iPads for BOS & SC
- 20 WAPs for HS/MS to upgrade to new Wireless system
- Town Library - Two Servers and one Desktop
- New Town PD Server, installation, Backup
- Ricoh Back file scanning for DocMall

FY14

- 62 desktops
- 40 monitors
- 32 Mac mini's - redo of ES Mac Lab
- 27 HP laptops
- 10 iPads
- 10 MacBook Airs
- Education and Government Servers and rack
- Police Dept. UPS batteries
- Ambulance Toughbook
- Backup system for Education and Government
- Ricoh Back file scanning for DocMall
- New cabling, network and wireless in Town Hall and Annex

Attachment B - Rockport Inventory - this section is still evolving

1) Apple
    a) Macbook Air - 106
        i) 4 - 2010
        ii) 8 - 2011
        iii) 14 - 2012
        iv) 18 - 2013
        v) 21 - 2015
        vi) 23 - 2016
        vii) 22 - 2017
    b) iMac - 32
        i) 2 from 2008, 5 from 2009, 1 from 2015, 24 from 2017
    c) iMac mini - 32
        i) 26 from 2014, 3 from 2015, 2 from 2016,

2) PCs - 293 total
   a) 72 on the gov, 221 on the school side
   b) Gov PCs - 43 desktops and laptops were manufactured in or before 2013 and will need to be replaced soon
   c) School PCs - 100 desktops and laptops were manufactured in or before 2013 and will need to be replaced soon
3) Dell Chromebook 11 model 3120 and 3180
   a) Chromebooks 113 purchased in 2015
   b) Chromebooks 143 purchased in 2016
   c) Chromebooks 66 purchased in 2017
4) iPads Total 80
   a) 10 iPads for School Comm and Board of Selectmen
   b) 70 in ES
   c) 10 in HS/MS for teachers
5) Monitors - 245 monitors - these are kept until they fail or no longer meet the need of the deployment.
6) Servers there are government and school 21 servers going back to 2013 - 6 servers will need to be replaced this year.

7) Printers - Printers/Copiers - there are at least 110 printers in the government and school buildings

Attachment C - pg 24

Director of Technology

- Education Technology Integration
  - Integrate Digital Literacy and Comp Sci standards with content standards
  - Staff development & integration support
  - Coordinate hardware and software planning
  - Asses technology trends for connections to education

- School Technical Infrastructure and support
  - Communication systems
  - Software Systems Support
  - Network & Hardware Support
  - User Support

- Clerical, Coordination, Compliance, & Communications
  - Purchasing, Inventory, lifecycle, Projects
  - Database Systems, Interoperability, & Compliance
  - Communications Coordination

- Town Technical Infrastructure and support
  - Software Systems Support
  - Network & Hardware Support
  - User Support